

| Trial Exhibit No. | Dep. Exhibit No. | Deponent | Title |
|-------------------|------------------|---------------|---|
| 1 | 100 | Agg | Chemistry and Enviroment Group monthly report - April 1995, by J.R. Harlamovs |
| 2 | 102 | Agg | Memo from Duncan to Kenyon re: Toxicity Assessment of Cominco Outfalls |
| 3 | 103 | Agg | Toxicity Memo - Distribution List (Toxicity Assessment of Cominco Outfalls |
| 4 | 108 | Agg | "Trail Operations at 100 Still Ahead of the Curve," in Canadian Mining Journal |
| 5 | 109 | Agg | Memo re: slag leachability: highlights of the meeting with consultant Dr. DA Brosnon, 8/5/92 |
| 6 | 113 | Agg | Memo re: Permit Excursions |
| 7 | 54 | Ball | Effluent Management Task Force Meeting Minutes - December 3, 13, 1991, by Kuit |
| 8 | 55 | Ball | Effluent Management Task Force Meeting Minutes - January 21, 1992 |
| 9 | 56 | Ball | Effluent Management Task Force Meeting Minutes - February 17, 1992, by Kuit |
| 10 | 57 | Ball | Memo: ETP Expansion |
| 11 | 58 | Ball | Research Memo: Trail Operations Effluent Recycle and Reduction |
| 12 | 59 | Ball | Research Report: Metals Removal from 07 Sewer, by McKay |
| 13 | 61 | Ball | Effluents & Water Quality / June 1994 Presentations |
| 14 | 63 | Ball | Chemical Process Research Monthly Report - December 1990, by Ball |
| 15 | 65 | Ball | Slag Study / Scope of Environment Related Work |
| 16 | 68 | Ball | Memo from Ball to Kuit: Mercury Removal Possibilities |
| 17 | 70 | Ball | Memo: The Effluent Treatment Plant as a Special Waste Facility |
| 18 | 71 | Ball | Effluent Management Task Force Minutes of Meeting / May 15, 1992 |
| 19 | 276 | Beatty Spence | BC ELP - Information Issue: Mercury Spills to Columbia, Sept 30 -Oct 1 & Oct 1-2 1992, prepared by Beatty Spence |
| 20 | 277 | Beatty Spence | Mercury Spill - Oct 1, 1992, Report to Crown Council, prepared by Len Butler |
| 21 | 278 | Beatty Spence | Memo from Beatty Spence to L. Butler re Environmental Impact Assessment - Cominco Hg Spill, 10/1/92 |
| 22 | 279 | Beatty Spence | Cominco File Note re Meeting with Carl Johnson / 9/6/95 |
| 23 | 280 | Beatty Spence | Memo from Beatty Spence to L. Butler re Cominco Spill from Sewer II Dec 9/10, 1993 |
| 24 | 281 | Beatty Spence | Memo from Beatty Spence to Butler and Johnson re Zinc Slurry Spill, July 23, 1997 |
| 25 | 282 | Beatty Spence | Columbia River 1991/93, Integrated Environmental Monitoring Program, Public Report |
| 26 | 284 | Beatty Spence | CRIEMP 1991/1993 Interpretive Report by Aquamatrix Research Ltd. Dup??? |
| 27 | 1481 | Bierman | River Mile Table for the Upper Columbia River and Lake Roosevelt Including U.S. EPA and USGS River Miles, Location and Landmark Descriptions, and RI/FS Work Plan Reach Segment Definitions, Table 1, page 37, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 28 | 1481 | Bierman | Estimated Critical Boundary Shear Stresses to Initiate Erosion for Various Size Fractions of Granulated Slag, Table 2, page 43, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 29 | 1481 | Bierman | Map of Upper Columbia River and Lake Roosevelt, Figure 1, page 47, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 30 | 1481 | Bierman | Map of Canadian Portion and Northern Section of the U.S. Portion of the Upper Columbia River and Lake Roosevelt, Figure 2, page 48, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 31 | 1481 | Bierman | Map of the Canada Reach of the Upper Columbia River and Lake Roosevelt, Figure 3, page 49, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 32 | 1481 | Bierman | Map of the Northport Reach of the Upper Columbia River and Lake Roosevelt, Figure 4, page 50, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 33 | 1481 | Bierman | Map of the Upper Reservoir Reach of the Upper Columbia River and Lake Roosevelt, Figure 5, page 51, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 34 | 1481 | Bierman | Map of the Middle Reservoir Reach of the Upper Columbia River and Lake Roosevelt, Figure 6, page 52, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 35 | 1481 | Bierman | Map of the Lower Reservoir Reach of the Upper Columbia River and Lake Roosevelt, Figure 7, page 53, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 36 | 1481 | Bierman | Map of Locations of Dams in the Upper Columbia River System and Lake Roosevelt, Figure 8, page 54, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 37 | 1481 | Bierman | Map of Locations of Dams in the Upper Columbia River System in the Vicinity of the International Border, Figure 9, page 55, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 38 | 1481 | Bierman | Water Column Total Zinc Concentrations Associated with Spill Event on April 7, 2008, at the Teck Cominco facility at Trail, British Columbia. Ambient Concentrations Upstream at Birchbank (top panel), Ambient and Spill Event Concentrations Downstream at Waneta (middle panel) and Spill Event Concentrations at Waneta on an Expanded Time Scale (bottom panel). Figure 10. page 56. Expert Report of Victor J. Bierman, Jr., September 17, 2010 |

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| 39 | 1481 | Bierman | Water Column Total Lead Concentrations Associated with Spill Event on April 7, 2008, at the Teck Cominco facility at Trail, British Columbia. Ambient Concentrations Upstream at Birchbank (top panel), Ambient and Spill Event Concentrations Downstream at Waneta (middle panel) and Spill Event Concentrations at Waneta on an Expanded Time Scale (bottom panel). Figure 11, page 57, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 40 | 1481 | Bierman | Water Column Total Cadmium Concentrations Associated with Spill Event on April 7, 2008, at the Teck Cominco facility at Trail, British Columbia. Ambient Concentrations Upstream at Birchbank (top panel), Ambient and Spill Event Concentrations Downstream at Waneta (middle panel) and Spill Event Concentrations at Waneta on an Expanded Time Scale (bottom panel). Figure 12, page 58, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 41 | 1481 | Bierman | Water Column Total Zinc Concentrations Associated with Spill Event on May 28, 2008, at the Teck Cominco facility at Trail, British Columbia. Ambient Concentrations Upstream at Birchbank (top panel), Ambient and Spill Event Concentrations Downstream at Waneta (middle panel) and Spill Event Concentrations at Waneta on an Expanded Time Scale (bottom panel). Figure 13, page 59, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 42 | 1481 | Bierman | Water Column Total Lead Concentrations Associated with Spill Event on May 28, 2008, at the Teck Cominco facility at Trail, British Columbia. Ambient Concentrations Upstream at Birchbank (top panel), Ambient and Spill Event Concentrations Downstream at Waneta (middle panel) and Spill Event Concentrations at Waneta on an Expanded Time Scale (bottom panel). Figure 14, page 60, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 43 | 1481 | Bierman | Water Column Total Cadmium Concentrations Associated with Spill Event on May 28, 2008, at the Teck Cominco facility at Trail, British Columbia. Ambient Concentrations Upstream at Birchbank (top panel), Ambient and Spill Event Concentrations Downstream at Waneta (middle panel) and Spill Event Concentrations at Waneta on an Expanded Time Scale (bottom panel). Figure 15, page 61, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 44 | 1481 | Bierman | Water Column Total Zinc Concentrations at Birchbank and Waneta during 1983-1985 (top panel) and 2003-2009 (bottom panel), Figure 16, page 62, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 45 | 1481 | Bierman | Water Column Total Lead Concentrations at Birchbank and Waneta during 1983-1985 (top panel) and 2003-2009 (bottom panel), Figure 17, page 63, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 46 | 1481 | Bierman | Water Column Total Cadmium Concentrations at Birchbank and Waneta during 2003-2009, Figure 18, page 64, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 47 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Zinc Concentrations at Birchbank and Waneta for 1983-1985 (top panel) and 2003-2009 (bottom panel), Figure 19, page 65, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 48 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Lead Concentrations at Birchbank and Waneta for 1983-1985 (top panel) and 2003-2009 (bottom panel), Figure 20, page 66, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 49 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Cadmium Concentrations at Birchbank and Waneta for 2003-2009, Figure 21, page 67, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 50 | 1481 | Bierman | Pre- and Post-1973 Cumulative Frequency Distributions for Upper Columbia River Flows at the International Boundary for 1938-2010 Period of Record, Figure 22, page 68, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 51 | 1481 | Bierman | Shear Stresses Computed by the HydroQual HEC-RAS Hydraulic Model as a Function of River Mile for a Flow of 2,000 m ³ /s at Low Pool (368.6 m). Colored Circles Indicate Largest Size of Movable Particles at each River Mile. Magenta Circles Indicate Non-Slag Particles. Purple Triangles Indicate Deposition of Non-Slag Particles, Figure 23, page 69, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 52 | 1481 | Bierman | Shear Stresses Computed by the HydroQual HEC-RAS Hydraulic Model as a Function of River Mile for a Flow of 4,000 m ³ /s at Low Pool (368.6 m), Figure 24, page 70, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 53 | 1481 | Bierman | Map of Computed Solids Transport Potential for a Flow of 2,000 m ³ /s at Low Pool (368.6 m), Figure 25, page 71, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 54 | 1481 | Bierman | Map of Computed Solids Transport Potential for a Flow of 4,000 m ³ /s at Low Pool (368.6 m), Figure 26, page 72, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 55 | 1481 | Bierman | Shear Stresses Computed by the HydroQual HEC-RAS Hydraulic Model as a Function of River Mile for a Flow of 2,000 m ³ /s at High Pool (392.2 m), Figure 27, page 73, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 56 | 1481 | Bierman | Shear Stresses Computed by the HydroQual HEC-RAS Hydraulic Model as a Function of River Mile for a Flow of 4,000 m ³ /s at High Pool (392.2 m), Figure 28, page 74, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 57 | 1481 | Bierman | Map of Computed Solids Transport Potential for a Flow of 2,000 m ³ /s at High Pool (392.2 m), Figure 29, page 75, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 58 | 1481 | Bierman | Map of Computed Solids Transport Potential for a Flow of 4,000 m ³ /s at High Pool (392.2 m), Figure 30, page 76, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 59 | 1481 | Bierman | Surface Sediment Total Zinc Concentrations by River Mile for 1984-1995, Figure 31, page 77, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 60 | 1481 | Bierman | Surface Sediment Total Zinc Concentrations by River Mile for 1996-2007, Figure 32, page 78, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 61 | 1481 | Bierman | Map of Surface Sediment Total Zinc Concentrations for 1984-1995, Figure 33, page 79, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 62 | 1481 | Bierman | Map of Surface Sediment Total Zinc Concentrations for 1996-2007, Figure 34, page 80, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 63 | 1481 | Bierman | Surface Sediment Total Lead Concentrations by River Mile for 1984-1995, Figure 35, page 81, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |

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| 64 | 1481 | Bierman | Surface Sediment Total Lead Concentrations by River Mile for 1996-2007, Figure 36, page 82, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 65 | 1481 | Bierman | Map of Surface Sediment Total Lead Concentrations for 1984-1995, Figure 37, page 83, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 66 | 1481 | Bierman | Map of Surface Sediment Total Lead Concentrations for 1996-2007, Figure 38, page 84, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 67 | 1481 | Bierman | Surface Sediment Total Cadmium Concentrations by River Mile for 1984-1995, Figure 39, page 85, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 68 | 1481 | Bierman | Surface Sediment Total Cadmium Concentrations by River Mile for 1996-2007, Figure 40, page 86, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 69 | 1481 | Bierman | Map of Surface Sediment Total Cadmium Concentrations for 1984-1995, Figure 41, page 87, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 70 | 1481 | Bierman | Map of Surface Sediment Total Cadmium Concentrations for 1996-2007, Figure 42, page 88, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 71 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Zinc Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure 43, page 89, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 72 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Lead Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure 44, page 90, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 73 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Cadmium Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure 45, page 91, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 74 | 1481 | Bierman | Curriculum Vitae for Victor J. Bierman, Jr., Appendix A, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 75 | 1481 | Bierman | Annotated Bibliography of Upper Columbia River Datasets, Appendix B, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 76 | 1481 | Bierman | Data Review Process, Appendix C, Expert Report of Victor J. Bierman, Jr., September 17, 2010 |
| 77 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Antimony Concentrations for 2003-2009, Figure D-1, page D-1, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix D |
| 78 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Arsenic Concentrations for 1983-1985 (top panel) and 2003-2009 (bottom panel), Figure D-2, page D-2, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix D |
| 79 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Chromium Concentrations for 2003-2009, Figure D-3, page D-3, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix D |
| 80 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Copper Concentrations for 1983-1985 (top panel) and 2003-2009 (bottom panel), Figure D-4, page D-4, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix D |
| 81 | 1481 | Bierman | Cumulative Frequency Distributions for Water Column Total Manganese Concentrations for 1983-1985 (top panel) and 2003-2009 (bottom panel), Figure D-5, page D-5, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix D |
| 82 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Antimony Concentrations for 1996-2007, Figure E-1, page E-1, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix E |
| 83 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Arsenic Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure E-2, page E-2, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix E |
| 84 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Chromium Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure E-3, page E-3, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix E |
| 85 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Copper Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure E-4, page E-4, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix E |
| 86 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Manganese Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure E-5, page E-5, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix E |
| 87 | 1481 | Bierman | Cumulative Frequency Distributions for Surface Sediment Total Mercury Concentrations for 1984-1995 (top panel) and 1996-2007 (bottom panel), Figure E-6, page E-6, Expert Report of Victor J. Bierman, Jr., September 17, 2010, Appendix E |
| 88 | 1480 | Blum | All Individual Samples Analyses and Average Values for Dissolved Hg for the Sept. – Oct. 2009 Sampling Campaign, Figure 1, page 5, Expert Report of Joel D. Blum, May 11, 2011 |
| 89 | 1480 | Blum | All Individual Samples Analyses and Average Values for Dissolved Hg for the March – May 2010 Sampling Campaign, Figure 2, page 6, Expert Report of Joel D. Blum, May 11, 2011 |
| 90 | 1480 | Blum | All Individual Samples Analyses and Average Values for Dissolved Hg for the June 2010 Sampling Campaign, Figure 3, page 7, Expert Report of Joel D. Blum, May 11, 2011 |
| 91 | 1480 | Blum | Analyses of Beach and Littoral Sediment Hg Concentrations as a Function of River Mile, Figure 4, page 9, Expert Report of Joel D. Blum, May 11, 2011 |
| 92 | 1480 | Blum | All Individual Samples Analyses for Particulate Hg for the June 2010 Sampling Campaign, Figure 5, page 10, Expert Report of Joel D. Blum, May 11, 2011 |
| 93 | 1480 | Blum | Kd Values for Hg Partitioning Between Particles and Solution Calculated for “Disturbed” Samples as a Function of River Mile, Figure 6, page 11, Expert Report of Joel D. Blum, May 11, 2011 |

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| 94 | 1480 | Blum | All Individual Samples Analyses and Average Values for Unfiltered Hg for the Sept.- Oct. 2009 Sampling Campaign, Figure 7, page 12, Expert Report of Joel D. Blum, May 11, 2011 |
| 95 | 1480 | Blum | Plot of the Amount of Zn Released as a Function of Time from the Data Presented in Paulson et al. (2006) for Sediment Core Incubation LR-6, Figure 8, page 19, Expert Report of Joel D. Blum, May 11, 2011 |
| 96 | 1480 | Blum | Replication of Figure 27 from Riese (2011) with the Addition of the Orange Arrow Showing a Two Order of Magnitude Uncertainty in Zn Fluxes Based on the Incubation Experiments of Paulson et al. (2006), Figure 9, page 19, Expert Report of Joel D. Blum, May 11, 2011 |
| 97 | 1480 | Blum | Plots of Surface Water Data for the Upper Columbia River from Surface Water Data Summary and Data Gap Report, Appendix B, page 32, Expert Report of Joel D. Blum, May 11, 2011 |
| 98 | NA | Blum | Resume of Joel Blum |
| 99 | NA | Blum | CCT Expert Blum, Joel\5-11-11 Report\J Blum Docs Considered\Queneau 2011.rtf |
| 100 | NA | Blum | CCT Expert Blum, Joel\5-11-11 Report\J Blum Docs Considered\USEPA 1631-1.pdf |
| 101 | 19 LMI | Brown | Letter from BA Heskin/Environment Canada to R.H. Ferguson/BC Ministry of Environment re Concern Developing at Cominco re recent acid spills |
| 102 | 21 LMI | Brown | Letter from EN Doyle to DA MacCullough re suggested changes to Geoffrey TG Scott's report on his Environmental Risk Analysis |
| 103 | 297 | C. Johnson | Notes from Meeting with W.M.B. re Acid Discharge Sampling Survey, by Kenyon |
| 104 | 298 | C. Johnson | Memo from C. Johnson to file re Meeting 5/23/84, Mercury Balance Zinc Roaster Circuit |
| 105 | 299 | C. Johnson | Memo from C. Johnson to D. McDonald re Cominco Court Case, Mercury Spill of March 1980 |
| 106 | 300 | C. Johnson | Status of Mercury in Fertilizer Plant Effluent, Meeting 8/16/1989, by Johnson |
| 107 | 301 | C. Johnson | Minister's Briefing Note |
| 108 | 302 | C. Johnson | Memo from R.J. Hammond to Carl Johnson re Cominco Waste Permits |
| 109 | 303 | C. Johnson | Memo from C. Johnson to Ken McLennan re Cominco Spill of 4/10/1991 |
| 110 | 304 | C. Johnson | Presentation by C. Johnson, Columbia River Water Quality Seminar Oct 8,9, 1991 |
| 111 | 305 | C. Johnson | Letter from C. Johnson to Graham Kenyon re Your FAX of Jan 27, 19924:00 pm / Slag Commitment |
| 112 | 307 | C. Johnson | Letter from C. Johnson to Kenyon re Frequency of Phosphoric Acid Spills at Fertilizer Plant |
| 113 | 308 | C. Johnson | Letter from C. Johnson to Roger Watson re Cominco Commitment to a Revised Slag Program |
| 114 | 311 | C. Johnson | Letter from C. Johnson to Doug Glover re Monitoring Results for March and April 1995 |
| 115 | 312 | C. Johnson | Memo to File PE/2753 re C. Johnson and B. Duncan float down river to observe slag accumulation on beaches and sandbars between smelter to the border |
| 116 | 227 | Cox | Electronic microscopic photos of slag |
| 117 | 228 | Cox | Concentrations of Elements in Sediments and Selective Fractions of Sediments, and in Natural Waters in Contact with Sediments from Lk. Roosevelt, 9/04, by USGS |
| 118 | 229 | Cox | Release of elements to Natural Water form Sediments of Lk. Roosevelt, published in Environmental Toxicology and Chemistry, Vo. 26, No. 12, pp. 2550/2559 |
| 119 | 1201 | Cox | MicroLab NW Laboratory report to Hurst re Slag in Sediment Analysis |
| 120 | 1202 | Cox | Draft Sediment Quality Assessment of LR, 1992 by USGS/EPA, Water/Supply Paper |
| 121 | 1207 | Cox | Sediment-Quality Assessment of FDR Lake and the Upstream Reach of the Columbia River, 1992 |
| 122 | 1208 | Cox | Preliminary Scope of Work: Assessment of Trace/element concentrations in sediment cores and rates of sediment accumulation in Lake Roosevelt |
| 123 | 1216 | Cox | Occurrence of trace elements and metallurgical slag in cores from LR |
| 124 | 287 | Crozier | Memo from R. Crozier to file re Minutes of Meeting with US DOI in Grand Coulee, WA, June 23, 1981 |
| 125 | 288 | Crozier | File Note by G.F. Kenyon re Visit by John Haller/National Park Svc and Frank Madison/Bureau of Reclamation, on May 6, 1986 |
| 126 | 289 | Crozier | Memo from Carl Johnson to Crozier re December 1994 Cominco Permit Non-Compliances |
| 127 | 290 | Crozier | Report by SIGMA Engineering Ltd / Columbia River Integrated Environmental Monitoring Program |
| 128 | 291 | Crozier | File Note by G.F. Kenyon re TelCon with R. Crozier, WMB, Nelson, Jan 29, 1990 |
| 129 | 292 | Crozier | Memo from Crozier to Jane Ramin re: Cominco Ltd. Trail Potential Cleanup Requirements |
| 130 | 293 | Crozier | Letter from G.F. Kenyon to R. Crozier re Permits: Annual Discharge Limits |
| 131 | 294 | Crozier | Significant Event Supplementary Report re deliberate discharge of mercury laden sludge (6000+ lbs of mercury) on March 19-20, 1980 |
| 132 | 295 | Crozier | Memo from Crozier to R. Daloise re Cominco Permit Exceedance - June 7, 1994 |
| 133 | 296 | Crozier | Table of Significant Noncompliance Evaluation of Waste Management Permits, Approvals and Order |
| 134 | 1 | Diefenbach | Diefenbach Report: Columbia Basin Mine and Mill Tailings Supplemental Sampling Program , September 2010 |
| 135 | 2 | Diefenbach | Diefenbach Report: Darft Upper Columbia River Sampling and Analysis 2002-2010, Field and Laboratory Activities |

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| 136 | 4 LMI | Downie | Letter from Pollution Control Branch to EN Doyle: "...the use of the Columbia River, notwithstanding its huge dilution potential, should not be considered as a waste disposal site." |
| 137 | 223 | Duncan | Cominco's 1995 Columbia River and Effluent Monitoring Program, by Duncan |
| 138 | 224 | Duncan | Environmental Performance Review of the New KIVCET Lead Smelter and Elimination of Slag Discharge: Assessment of Columbia River Receiving Waters, Summary |
| 139 | 225 | Duncan | Assessment of Columbia River Receiving Waters, Final Report |
| 140 | 226 | Duncan | Golder Associates Draft Report on Sequential Extraction of Columbia River Sediments |
| 141 | 227 | Duncan | Report on the Sequential Analysis of Lines of Evidence for Risk from the Teck Cominco Smelter at Trail, BC |
| 142 | 230 | Duncan | Columbia River Travel Time Model Assessment, by Duncan |
| 143 | 231 | Duncan | Environmental Impact of Accidental Discharge of ZPL Fume by TCML to the Columbia River via Comb III Outfall on April 7, 2008 by Duncan for Robyn Roome |
| 144 | 235 | Duncan | Group of documents from Duncan's files. Last page: Proposed River Slag Study |
| 145 | 238 | Duncan | Briefing Note by Duncan re Lake Roosevelt USGS/CCT Trace Elements in Sediments (Cox, et al 2005) and Rick Cardwell's proposed studies |
| 146 | 243 | Duncan | Photos of Slag Grains |
| 147 | 244 | Duncan | Memorandum from Duncan to Derrill Thomas re slag and coal discharges to the River as per suggested revisions |
| 148 | 245 | Duncan | Email from Duncan to Colin Spence and others re: Brief History of Major Changes at Teck Cominco Smelter Trail - Sort of brief but a lot happens around here |
| 149 | 246 | Duncan | Email string between Scott Becker, Marko Adzic & Todd Martin re fingerprinting, with table re estimate of metals to river via slag discharge |
| 150 | 248 | Duncan | Email string between Duncan, Gloria Armstrong and Cox re slag releases to Columbia River Chart in your presentationAqueous Geo chemistry course with USGS |
| 151 | 249 | Duncan | Memorandum from Duncan to Derrill Thomas re Toxicity Testing of Slag Discharge during Tapping |
| 152 | 250 | Duncan | Memorandum from Duncan to distribution list re Toxicity Assessment of Cominco Outfalls |
| 153 | 251 | Duncan | Memorandum from Duncan to Horswill re brief for your meeting (March 11) with Louis Tousignant |
| 154 | 253 | Duncan | Email string between Duncan & Kuit re: Sediment Trend Analysis - Slag in the Columbia (Also Kuit 27) |
| 155 | 255 | Duncan | Briefing Note by Duncan re Lake Roosevelt USGS/CCT Trace Elements in Sediments (Cox, et al., 2005) |
| 156 | 257 | Duncan | Spreadsheets of slag production estimates from Pb production data (from annual reports), calculated slag to river and measured slag to river, from 1910/1997; Comparison of slag calculated based on Pb produced as compared to slag determined by metallurgical balance |
| 157 | 259 | Duncan | Spreadsheet re Estimate of metals to river via slag discharge |
| 158 | 123 | Edwards | Cominco File Note re: Summary - 1997 Trail Operations Spills |
| 159 | 124 | Edwards | Cominco Reported Spills May 97 table |
| 160 | 129 | Edwards | Effluent Management Plan, Cominco Trail Operations |
| 161 | 4 LMI | Edwards | Abstract of investigation of undissolved mineral matter in Columbia River at Northport, WA. "The Columbia River, both above and below Northport, was found to be polluted with small black particles of smelter slag." |
| 162 | 6 LMI | Edwards | Decision of the Tribunal Reported March 11, 1941, Trail Smelter Arbitration between US and Canada |
| 163 | 8 LMI | Edwards | Chemistry in Canada, Environmental Control at Cominco Ltd., by Nigel Doyle |
| 164 | NA | Edwards | Appendix 42, Slag Pollution, Appendices to the Answer & Argument Presented in Behalf of the US to the Canadian Agent |
| 165 | 82 LMI | Fletcher | The Environmental Effect of Trail Slag on the Columbia River "... Cominco's position that tail slag is harmless cannot be defended with any degree of objectivity." |
| 166 | 88 LMI | Glover | 1988 Environmental Report, Trail Operations, by Kenyon, McCunn, & Glover |
| 167 | 140 | Horswill | 1993 Environmental Report, Trail Operations, by Glover |
| 168 | 148 | Horswill | Letter to Cathy McGregor and Christine Stewart from Horswill re: Water Quality Objectives for Lower Columbia |
| 169 | 159 | Kenyon | 1988 Environmental Report, Trail Operations, by Kenyon, McCunn & Glover |
| 170 | 160 | Kenyon | 1989 Environmental Report, Trail Operations, by Kenyon, McCunn & Glover |
| 171 | 161 | Kenyon | Letter from Department of State to the Embassy of Canada re mercury discharge into the Columbia on 3/19-22/1980 |
| 172 | 162 | Kenyon | Letter from Canadian Embassy to Department of State re mercury discharge into the Columbia on 3/19-20/1980 |
| 173 | 163 | Kenyon | Significant Event Report re deliberate discharge of 6000-7000 lbs. (mercury) sludge on 3/19-20/1980 |
| 174 | 164 | Kenyon | Technical Report by BC Environment for Cominco's application for permits |
| 175 | 165 | Kenyon | The environmental renaissance of a smelter, by Kenyon |

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| 176 | 166 | Kenyon | Slag Disposal Options Environmental and Engineering Studies |
| 177 | 167 | Kenyon | Environmental Briefing Notes, Trail Lead Study by Kenyon |
| 178 | 168 | Kenyon | File Note by Kenyon re Meeting with Columbia River Study Steering Committee Oct 15, 1990 with Waste Management Branch Permits meetings with Carol Johnson, 11/28 and 12/4/1990 |
| 179 | 171 | Kenyon | File Note by Kenyon re Meeting April 11, 1991 - Slag Disposal |
| 180 | 172 | Kenyon | Memorandum from Kenyon re Slag Disposal |
| 181 | 173 | Kenyon | Letter from Kenyon to Jim McLaren re Permit PE-02753 - Trail Slag Disposal |
| 182 | 174 | Kenyon | Letter from Jim McLaren to Kenyon re Permit PE-02753 - Trail Slag Disposal |
| 183 | 175 | Kenyon | Slag Study - Scope of Environment Related Work, by Kuit |
| 184 | 176 | Kenyon | The Question of Tail Slag Disposal to the Columbia River, by Kenyon |
| 185 | NA | Kenyon | The Question of Tail Slag Disposal to the Columbia River, by Kenyon, with Tables 1, 2 & 3 attached (authenticated by Kenyon at Dep. Ex. 176) |
| 186 | 177 | Kenyon | Trail Metallurgical Operations Application for Extension of Effluent Permit PE/02753 |
| 187 | 182 | Kenyon | Letter from Leslie Churchland to Crozier re amended permits pursuant to the Waste Management Act on behalf of Cominco Ltd. issued Feb 14, 1992 |
| 188 | 186 | Kenyon | Memorandum from Kenyon to Watson re expedited slag option |
| 189 | 187 | Kenyon | Tail Slag Fact Sheet (Draft), faxed 7/29/1992 |
| 190 | 191 | Kenyon | Memorandum from Kenyon re III combined performance: Hg |
| 191 | 192 | Kenyon | Email from Kenyon to "Bob" re slag storage |
| 192 | 193 | Kenyon | Email string between Kenyon and Hilts re Lake Roosevelt, 4/23/2003 and 4/30/2003 |
| 193 | NA | Kern | Kern Documents Considered\Data\KernAnalysis_Figures SR8 to SR12.xlsx |
| 194 | 1442 | Kern | Correlations between reported principal component scores from Dr. Riese's expert witness report and calculated principal component scores based on the same data, Table 1, page 8, Expert Report of J, Kern, May 13, 2011 |
| 195 | 1442 | Kern | Correlation between principal components extracted by Riese from the full metals data set and those extracted by Kern from the EPA/CH2MHill and Hazen studies, Table 2, page 9, Expert Report of J, Kern, May 13, 2011 |
| 196 | 1442 | Kern | Description of parameters used in estimating rock retained in Lake Roosevelt as a function of ore produced by underground mines in the United States, Table 3, page 15, Expert Report of J, Kern, May 13, 2011 |
| 197 | 1442 | Kern | Summary of bootstrap distributions of waste rock retained in Lake Roosevelt (1000 tons) for Mr. Brown's coefficients assuming no error, and 10%, 20%, and 30% relative error in the coefficients, Table 4, page 24, Expert Report of J, Kern, May 13, 2011 |
| 198 | 1442 | Kern | Comparison of principal component scores reported by Riese to factor scores reported by Vlassopoulos in their expert reports, Figure 2, page 6a, Expert Report of J, Kern, May 13, 2011 |
| 199 | 1442 | Kern | Plots of first two component scores for EPA/CH2MHill study based on scores extracted from the full data set by Riese and those extracted from the EPA/CH2MHill and Hazen, Figure 2, page 10, Expert Report of J, Kern, May 13, 2011 |
| 200 | 1442 | Kern | Log-log relationship between ore and waste rock produced for 55 underground mines in the United States, Figure 3, page 17, Expert Report of J, Kern, May 13, 2011 |
| 201 | 1442 | Kern | Bootstrap distribution of estimated regression between ore and waste rock production and cumulative distribution of 393 underground mines in the United States included in Mr. Brown's analysis and for which ore production is known, Figure 4, page 18, Expert Report of J, Kern, May 13, 2011 |
| 202 | 1442 | Kern | Total soil loss from waste piles plotted against total waste rock produced for 393 underground mines, as reported by Mr. Brown, Figure 5, page 20, Expert Report of J, Kern, May 13, 2011 |
| 203 | 1442 | Kern | Bootstrap uncertainty distribution of Mr. Brown's estimate of waste rock from U.S. underground mines retained in Lake Roosevelt, Figure 6, page 21, Expert Report of J, Kern, May 13, 2011 |
| 204 | 1442 | Kern | Bootstrap uncertainty distribution of Mr. Brown's estimate of waste rock from U.S. underground mines retained in Lake Roosevelt, with 10%, 20% and 30% relative error in model parameters, Figure 7, page 25, Expert Report of J, Kern, May 13, 2011 |
| 205 | 1442 | Kern | Resume of John W. Kern, Attachment A, page 29, Expert Report of J, Kern, May 13, 2011 |
| 206 | 3 | Kuit | Effluent Management Task Force - Meeting Minutes - March 13, 1992, by Kuit |
| 207 | 4 | Kuit | The Sun Newspaper Article: "Present Discharge Levels not a Threat" |
| 208 | 5 | Kuit | Lower Columbia River Distribution of Slag and the Impact on Fish Habitat, by Sigma Engineering |
| 209 | 6 | Kuit | Sediment Quality Assessment of Franklin D. Roosevelt Lake and the Upstream Reach of the Columbia River, Washington, 1992, by USGS |
| 210 | 7 | Kuit | Slag Study - Environmental Components - Minutes of Meeting - July 12, 1991, by Kuit |
| 211 | 8 | Kuit | Cominco Research Project Definition Worksheet |

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| 212 | 9 | Kuit | Memo: Disposal of Granulated Tail Slag in Columbia River, from PJ McIver |
| 213 | 11 | Kuit | Letter from Doyle re Geoffrey T.G. Scott's report on his Environmental Risk Analysis |
| 214 | 13 | Kuit | File Note by Doyle: Review of Trail Operations' Environmental Control Permit Situation |
| 215 | 17 | Kuit | Notes from meeting with W.M.B. Re Acid Discharge Sampling Survey |
| 216 | 18 | Kuit | Notes from meeting with W.M.B. Re Acid Discharge Sampling Survey |
| 217 | 22 | Kuit | Memo by Kuit: Environmental Component of Slag Study - Interim Results (Also McKay 71 in Teck v. LMI case) |
| 218 | 23 | Kuit | Effluent Management Task Force - Meeting Minutes - November 7, 1991, by Kuit |
| 219 | 24 | Kuit | Fax from McCandless to Kuit and Kenyon re total & dissolved metals in test |
| 220 | 28 | Kuit | E-mail between Kuit and Duncan: Mercury in Atmosphere and other issues (Also Kuit 131 in Teck v. LMI) |
| 221 | 29 | Kuit | Memo from Kuit to Kenyon re: Slag Disposal Permit Application - Terms of Reference |
| 222 | 146 LMI | Kuit | Teck Memo from PJ McIver to Kenyon re DJ McKay's Report: "Metals Related Environmental Assessments of Disposal Options for Fuming Furnace Slag" |
| 223 | 149 LMI | Kuit | Dames & Moore Report, Investigation of Geotechnical and Environmental Issues Proposed Land Disposal for Fuming Furnace Tail Slag, Duncan Flats, B.C. |
| 224 | 155 LMI | Kuit | Memo from SJ Walden to Gord Mattson re Interim Report-Laboratory Column Leaching of Ferrous Granules |
| 225 | 2 LMI | Kuit | Excerpt: "Abstract of US Opening Statement," from Trail Smelter Question: Part I Abstract & Analysis of US Statement & Reply and Appendices Thereto; Part 2 Material Prepare for Canadian Counsel for Argument, by RC Crowe |
| 226 | 3 LMI | Kuit | Appendices to the Answer & Argument Presented in Behalf of the US to the Canadian Agent (excerpts) |
| 227 | 4 LMI | Kuit | Excerpt: "Slag Pollution of the Columbia River," from Trail Smelter Question: Part I Abstract & Analysis of US Statement & Reply and Appendices Thereto; Part 2 Material Prepare for Canadian Counsel for Argument, by RC Crowe |
| 228 | 200 | Magoon | BC Environmental Permit PE-02753 (effluent) |
| 229 | 201 | Magoon | New Lead Smelter Project - Review of Environmental Effects on Trail Operations |
| 230 | 208 | Magoon | Risk Assessment Trail Operations Cominco Ltd. 2000 |
| 231 | 215 | Magoon | Statement of Certification/Summary of Data Submitted re: Trail Operations Releases |
| 232 | 1238 | Majewski | Concentrations and Distribution of Slag-Related Trace Elements and Mercury in Fine-Grained Beach and Bed Sediments of Lake Roosevelt, April-May 2001 |
| 233 | 30 | McKay | Metals-Related Environmental Assesments of Disposal Options for Fuming Furnace Slag (Also McKay 63 in Teck v. LMI) |
| 234 | 31 | McKay | Memo: Water Leach Slag Studies (Also McKay 66 in Teck v. LMI) |
| 235 | 32 | McKay | File Note: Leachability of Tail Slag |
| 236 | 33 | McKay | Memo from McKay to Kenyon: Leachability of Blast Furnace Slags in SWEP Testing |
| 237 | 34 | McKay | Memo from McKay to Kuit: Background Data on Cominco Research Testwork for Hydrogeotechnical Consultants |
| 238 | 35 | McKay | Research Report by McKay: Metals-Related Aspects of Land Disposal of Fuming Furnace Slag |
| 239 | 36 | McKay | Memo: Slag Leachability: Highlights fo the Meeting with Consultant DR. D.A. Bronson, August 5, 1992 |
| 240 | 37 | McKay | Memo from McKay to Kuit and Kenyon: Update on Cominco Research Testwork on "Metals-Related Issued of Land Disposal of Fuming Furnace Slag" |
| 241 | 64 LMI | McKay | Kootenay Air and Water Quality Study, Phase I, by Ministry of Environment (excerpts) |
| 242 | 65 LMI | McKay | Kootenay Air and Water Quality Study, Phase II, by Ministry of Environment (excerpts) |
| 243 | 68 LMI | McKay | File Note by DG Reynolds: Leachability of Tail Slag |
| 244 | 70 LMI | McKay | Environmental Characterizaton of Fuming Furnace Slag |
| 245 | 72 LMI | McKay | Slag Disposal Options, Environmental and Engineering Studies |
| 246 | NA | McLean | CCT v Teck\CCT Expert McLean, Dave (NHC)\9-17-10\ Report\Modeling\0.25mm_Particles.gif |
| 247 | NA | McLean | CCT Expert McLean, Dave (NHC)\9-17-10\ Report\Modeling\1mm_Particles.gif |
| 248 | NA | McLean | CCT Expert McLean, Dave (NHC)\9-17-10 Report\NHC Supporting Documents\Field data collection\Underwater_Video\cobble_wt_slag_wanetaeddy.avi |
| 249 | NA | McLean | CCT Expert McLean, Dave (NHC)\9-17-10 Report\NHC Supporting Documents\Field data collection\Underwater_Video\sand_wt_slag_wanetaeddy.avi |
| 250 | NA | McLean | CCT Expert McLean, Dave (NHC)\9-17-10 Report\NHC Supporting Documents\Photos\2010_0304.zip\seweroutfall_trailersalesyard.jpg |
| 251 | NA | McLean | CCT Expert McLean, Dave (NHC)\9-17-10 Report\NHC Supporting Documents\Photos\Slag Photos.zip |
| 252 | 1440 | McLean | Summary of Field Investigations conducted by NHC, Table 1, page 3, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 253 | 1440 | McLean | Period of Record of Key Hydrometric Stations, Table 2, page 4, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 254 | 1440 | McLean | Period of Record of Sediment Stations, Table 3, page 7, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |

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| 255 | 1440 | McLean | Period of Record of Water Quality Stations, Table 4, page 7, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 256 | 1440 | McLean | Comparison of Discharges Before and After Flow Regulation, Table 5, page 12, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 257 | 1440 | McLean | Historical Suspended Sediment Data Summary – Columbia River at Birchbank (08NE049), Table 6, page 13, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 258 | 1440 | McLean | Hydraulic Geometry at Trail and International Boundary Gauging Stations, Table 7, page 16, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 259 | 1440 | McLean | Surface Grain Size Statistics, Table 8, page 18, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 260 | 1440 | McLean | Sub-surface Grain Size Statistics, Table 9, page 21, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 261 | 1440 | McLean | Sediment Transport Characteristics of Slag Particles, Table 10, page 28, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 262 | 1440 | McLean | Critical Velocity for Initiation of Slag Transport and Suspension, Table 11, page 29, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 263 | 1440 | McLean | Comparison of Reach-average Hydraulic Properties from Trail, BC to International Boundary and International Boundary to Northport, Washington, Table 12, page 39, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 264 | 1440 | McLean | Summary of Sediment Samples Collected in April 2010 and the Subsequent Analysis that was Completed, Table 13, page 51, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 265 | 1440 | McLean | TAL Analysis Results from April 2010 Samples, Table 14, page 63, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 266 | 1440 | McLean | Percent of Sediment that was Physically Identified as Slag, Table 15, page 66, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 267 | 1440 | McLean | Distinct Identifiable Sedimentary Units and Their Slag Content, Table 16, page 69, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 268 | 1440 | McLean | Net Volume Changes Over Time at Fort Shepherd and Waneta Pools, Table 17, page 74, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 269 | 1440 | McLean | Sediment and Slag Deposition Volumes for Different Sedimentary Units, Table 18, page 75, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 270 | 1440 | McLean | Study Area, Figure 1, page 6, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 271 | 1440 | McLean | Columbia River and Tributaries Upstream, Figure 2, page 11, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 272 | 1440 | McLean | Columbia River Hydrograph at International Boundary Before and After Flow Regulation, Figure 3, page 15, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 273 | 1440 | McLean | Variation in Peak and Mean Annual Discharges Based on the WSC Hydrometric Gauge Records, Figure 4, page 15, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 274 | 1440 | McLean | Hydraulic Geometry Measurements at Trail and International Boundary Hydrometric Stations, Figure 5, page 17, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 275 | 1440 | McLean | Surface Sampling Sites, Figure 6, page 19, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 276 | 1440 | McLean | Surface Grain Size Distribution of River Bed Sediments, Figure 7, page 20, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 277 | 1440 | McLean | Sub-surface Grain Size Distribution of River Bed Sediments, Figure 8, page 20, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 278 | 1440 | McLean | Estimated Annual Slag Production at Teck Cominco Smelter in Trail, Figure 9, page 23, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 279 | 1440 | McLean | Slag Discharge Site at Trail in 1992, Figure 10, page 24, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |

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| 280 | 1440 | McLean | Grain Size Distribution of Grab Samples, (SL 1 through SL4) Collected from the River Bed Below Teck Cominco, Figure 11, page 26, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 281 | 1440 | McLean | Shields' Incipient Motion Relation for Granular Sediment Subject to River Currents, Figure 12, page 27, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 282 | 1440 | McLean | Transport and Suspension of Slag Particles in Columbia River at Trail and International Boundary Hydrometric Station Sites in 1953 and 1993, Figure 13, page 31, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 283 | 1440 | McLean | Portion of Canadian Hydrographic Service Chart 3055 of Columbia River, Figure 14, page 33, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 284 | 1440 | McLean | Cross Section Locations, Figure 15, page 34, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 285 | 1440 | McLean | Computed Water Surface Profiles Along Columbia River from Northport, Washington to Birchbank, BC, Figure 16, page 35, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 286 | 1440 | McLean | Variation in Mean Channel Velocity from Northport Washington to Birchbank, BC, Figure 17, page 37, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 287 | 1440 | McLean | Variation in Bed Shear Stress from Northport, Washington to Birchbank, BC, Figure 18, page 38, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 288 | 1440 | McLean | SRH-1D Simulation 1: One-Year Simulation of Slag Transport for the Hypothetical Starting Situation of a 1 m Thick Slag Deposit on River Bed Between Trail and the International Boundary, Figure 19, page 41, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 289 | 1440 | McLean | SRH-1D Simulation 2: Five-Year Simulation of Slag Transport for the Hypothetical Starting Situation of a 1 m Thick Slag Deposit on River Bed Between Trail and the International Boundary, Figure 20, page 43, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 290 | 1440 | McLean | Example of Flow Field at the Confluence of the Columbia River and Pend d'Oreille River, Figure 21, page 45, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 291 | 1440 | McLean | Location of Each Sampling Site and Key Geographic Features, Figure 22, page 47, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 292 | 1440 | McLean | Concentrations of Metals Associated with Slag Along the Columbia River, Figure 23, page 62, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 293 | 1440 | McLean | Metal Concentrations Associated with the SL4 Sample for Five Grain Sizes Classes and a Composite Sample, Figure 24, page 64, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 294 | 1440 | McLean | Scour and Fill at Ft. Shepherd Pool and Waneta Pool, 1948 to 1989, Figure 25, page 71, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 295 | 1440 | McLean | Scour and Fill at Ft. Shepherd Pool and Waneta Pool, 1989 to 2010, Figure 26, page 72, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 296 | 1440 | McLean | Subsurface Sediment Below Armour at Site B3, Photo 1, page 48, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 297 | 1440 | McLean | Bagged Samples (250 g) for TAL, Photo 2, page 49, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 298 | 1440 | McLean | Ekman Dredge Used to Collect Samples from Bottom of River in Pools, Photo 3, page 50, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 299 | 1440 | McLean | Location of Grab Samples (SL1-4) at Trail BC, Photo 4, page 52, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 300 | 1440 | McLean | Sampling Sites A1 through A6, Photo 5, page 53, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 301 | 1440 | McLean | Site B4 Where a Bulk Sample and 60 cm Deep Profile in the Bar was Dug, Photo 6, page 54, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
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| 303 | 1440 | McLean | Sample Sites B3, B5 and B6, Photo 8, page 56, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |

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| 304 | 1440 | McLean | Sample Sites B7, B8 and B9, Photo 9, page 57, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010 |
| 305 | 1440 | McLean | Declaration and Resume of Dr. David G. McLean, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010, Appendix A |
| 306 | 1440 | McLean | HEC/RAS Model of Columbia River, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010, Appendix B |
| 307 | 1440 | McLean | Sediment Sampling Plan, Opinion on the Transport of Metallurgical Slag by the Columbia River, Trail B.C. to International Boundary, Northwest Hydraulic Consultants, September 17, 2010, Appendix C |
| 308 | 1441 | McLean | Reference Distances, Table 1, page 4, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 309 | 1441 | McLean | Rapids on Upper Columbia River Before Grand Coulee Dam, Table 2, page 11, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 310 | 1441 | McLean | Summary of historical suspended sediment data – Columbia River at Birchbank, Table 3, page 15, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 311 | 1441 | McLean | Variation in settling velocity and settling time with particle size for a reservoir 50 ft. deep, Table 4, page 32, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 312 | 1441 | McLean | Comparison of predicted and measured sediment transport from Yang (1996), Table 5, page 37, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 313 | 1441 | McLean | Summary of discharge and water level 22-29 March 2011), Table 6, page 60, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 314 | 1441 | McLean | Study area showing Trail and LeRoi smelters, Figure 1, page 5, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 315 | 1441 | McLean | Study area showing dams in the Upper Columbia River watershed, Figure 2, page 6, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
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| 317 | 1441 | McLean | Location map showing selected stream flow gages, Figure 4, page 8, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 318 | 1441 | McLean | Time line for the Upper Columbia River, Figure 5, page 9, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
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| 321 | 1441 | McLean | Aerial photos of the Little Dalles before and after channel modifications, Figure 8, page 14, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 322 | 1441 | McLean | Suspended sediment rating curves at Northport and Birchbank (Trail), Figure 9, page 16, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
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| 324 | 1441 | McLean | Distribution of sediment sizes along reservoir, Figure 11, page 18, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 325 | 1441 | McLean | Location of Midnite Mine, Figure 12, page 28, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 326 | 1441 | McLean | USGS hydraulic measurements that were ignored in Brown's analysis of Midnite Mine, Figure 13, page 30, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
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| 329 | 1441 | McLean | Comparison of 1D and 2D representation of flow in China Bend, Figure 16, page 42, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 330 | 1441 | McLean | Eddy near Flat Creek in China Bend, Upper Columbia River, Figure 17, page 43, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
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| 332 | 1441 | McLean | Location of dam sites used for determining tributary sediment loads, Figure 19, page 49, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
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| 357 | 1441 | McLean | Columbia River, Panel 4, Grand Rapids, Gifford's Rapids, Appendix B, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
| 358 | 1441 | McLean | Columbia River, Panel 5, Nine Mile Rapids, Kettle Falls, Appendix B, Opinion on the Transport and Fate of Metallurgical Slag Discharged into the Columbia River, Northwest Hydraulic Consultants, May 13, 2011 |
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| 370 | | | Duplicate Exhibit |
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| 372 | 1506 | Medine | Location map for the mines, mills, and smelters addressed in Teck's reports, Figure 1-1, page 5, Expert Rebuttal Report of Allen J. Medine, May 13, 2011 |
| 373 | 1506 | Medine | The Upper Columbia River (UCR) from the Grand Coulee Dam to the border with Canada, downstream of the Teck Smelter (CH2MHill, 2006, Figure 1-3, page 6, Expert Rebuttal Report of Allen J. Medine, May 13, 2011 |
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| 392 | 1506 | Medine | Resume of Allen J. Medine, Appendix A, page 53, Expert Rebuttal Report of Allen J. Medine, May 13, 2011 |
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| 394 | 270 | Nener | Columbia River Integrated Environmental Monitoring Program (CRIEMP) 1991 - 1993 Interpretive Report, by Aquamatrix Research Ltd. |
| 395 | 1415 | Nener | DRAFT Cominco Slag Survival and Water Quality Results of Bioassays on Five Species of Aquatic Organisms, by Nener |
| 396 | NA | Passmore | Invoices and contract from Fulcrum Environmental Consulting |
| 397 | NA | Passmore | Detail of payments to Fulcrum Environmental Consulting |
| 398 | | | Deleted Exhibit |
| 399 | | | Deleted Exhibit |
| 400 | | | Deleted Exhibit |
| 401 | NA | Passmore | Records of expense reimbursement for RI/FS related travel |
| 402 | NA | Passmore | Compensation records for Don Hurst |
| 403 | NA | Passmore | Time records for Don Hurst |
| 404 | NA | Passmore | Compensation records for Gary Passmore |
| 405 | NA | Passmore | Time records for Gary Passmore |
| 406 | NA | Passmore | Compensation records for Patti Bailey |
| 407 | NA | Passmore | Time records for for Patti Bailey |
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| 417 | NA | Queneau | Photo, 1904, Trail Historical Society (Trail and Smelter, Appendix J, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011) |

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| 418 | NA | Queneau | Photo, 1907 Smelter and Bay Avenue Bridge, Appendix J, Expert Opinion and Rebuttal of Paul B. Queneau, May 13, 2011 |
| 419 | NA | Queneau | Photo, 1910, Slag filling in Bay Avenue, Appendix J, Expert Opinion and Rebuttal of Paul B. Queneau, May 13, 2011 |
| 420 | NA | Queneau | Photo, 1910 (JFH Expert Report on page 13, Appendix J, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011) |
| 421 | NA | Queneau | Photo, 1927, Trail Historical Society (Trail Smelter, Appendix J, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011) |
| 422 | NA | Queneau | Photo, 1927, Trail Historical Society (Trail Smelter, Appendix J, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011) |
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| 456 | 1495 | Queneau | Average Daily Measurements of Total and Dissolved Metals (Pb, Zn, Cd, As, Cu and Hg) for Various Periods Between 1980 and 1996, Figure 28, page 130, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
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| 476 | 257 | Queneau | Slag Production Estimates From Pb Production Data (From Annual Reports), Calculated Slag to River and Measured Slag to River, (Calculated from Metallurgical Balance), Table 1, Appendix K, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 477 | 257 | Queneau | Comparison of Slag Calculated Based on Pb Produced as Compared to Slag Determined by Metallurgical Balance, Table 2, Appendix K, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 478 | 257 | Queneau | Metal Loads via Slag per Year to the River Based on Metallurgical Balance Data and Slag Composition by Percentage, Table 3, Appendix K, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 479 | 257 | Queneau | Estimate of Metals to River via Slag Discharge, Table 4, Appendix K, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 480 | 1495 | Queneau | Tabulation of Recorded Spills, Appendix L, page 176, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 481 | | | Deleted Exhibit |
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| 507 | NA | Queneau | Spreadsheet 10, Emissions of Metals to Atmosphere, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 508 | NA | Queneau | Spreadsheet 11, Metal Outfalls, Primarily to the Columbia River, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 509 | NA | Queneau | Spreadsheet 12, Arsenic Balance, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 510 | NA | Queneau | Spreadsheet 13, Cadmium Balance, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 511 | NA | Queneau | Spreadsheet 14, Lead Balance, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 512 | NA | Queneau | Spreadsheet 15, Mercury Balance, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 513 | NA | Queneau | Spreadsheet 16, Zinc Balance, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 514 | NA | Queneau | Spreadsheet 18, Fertilizer Balance, Appendix D, Expert Opinion and Rebuttal of Paul B. Queneau, May 12, 2011 |
| 515 | NA | Queneau | D.D. Logan, Memo to the BC Ministry of Environment |
| 516 | | | Deleted Exhibit |
| 517 | NA | Queneau | Anonymous, Memo and Tables re: Slag Released to the Columbia River and Percentage Composition of Metals |
| 518 | NA | Roland | Remedial Site Assessment Decision EPA Region X, Dec. 2000 |
| 519 | | | Duplicate Exhibit |
| 520 | | | Duplicate Exhibit |
| 521 | NA | Roland/Tonel | EPA's Phase I Sediment Sampling Data Evaluation Report, August 25, 2006 |
| 522 | NA | Roland/Tonel | Modified RI/FS Workplan for the Upper Columbia River, Volume I |
| 523 | NA | Roland/Tonel | Modified RI/FS Workplan for the Upper Columbia River, Volume II |
| 524 | NA | Roland | Hopkins, B.S., D.K. Clark, M. Schlender, and M. Stinson. 1985. Basic Water Monitoring Program: Fish tissue and sediment sampling for 1984. Pub. No. 85-7, Washington State Department of Ecology, Olympia, WA |
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| 529 | 1075 | Roland | Era, B. and D. Serdar. 2001. Reassessment of toxicity of Lake Roosevelt sediments. Pub. No. 01-03-043. Washington State Department of Ecology, Olympia, WA |
| 530 | NA | Roland | Recommendations for Further Evaluations of Sediment Chemistry and Sediment Toxicity in the Upper Columbia River Submitted to Department of Ecology by Don MacDonald, MacDonald Environmental Sciences Ltd., June 30, 2011 |
| 531 | 1152 | Roland | FIELD RECONNAISSANCE AND SEDIMENT SAMPLING REPORT, Upper Columbia River Site, Washington State Department of Ecology, August 2007. |
| 532 | 1127 | Roland | Washington State Department of Ecology, Manchester Environmental Lab Analysis Report for Black Sand Beach, February, 2008 |
| 533 | 1126 | Roland | Upper Columbia River – Black Sand Beach Proposal to Conduct Static Acute Fish Toxicity Tests, March 6, 2008 |
| 534 | NA | Roland | Summary of Sediment Sampling Activities to Support Preliminary Benthic Invertebrate Colonization Studies of Lake Roosevelt Sediments, Technical Memorandum, Toxics Cleanup Program, Washington State Department of Ecology, June 2008 |
| 535 | NA | Roland | Washington State Department of Ecology Capital Project Request for Upper Columbia River Black Sand Beach Cleanup, August 2008 |
| 536 | NA | Roland | Email from Flora Goldstein to John Roland re: Ecology past costs for Lake Roosevelt, July 17, 2006. |

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| 537 | NA | Roland | Partial Identification of Past Costs for UCR Site by John Roland, Washington State Department of Ecology, June 1, 2012 |
| 538 | NA | Roland | Estimate of Costs for Upper Columbia/CERCLA RI/FS, Washington State Department of Ecology |
| 539 | NA | Roland | Intergovernmental Memorandum of Agreement for the Upper Columbia River Superfund Site, 2007 |
| 540 | NA | Roland | Estimate of Costs for Upper Columbia/CERCLA RI/FS, Washington State Department of Ecology |
| 541 | NA | Roland | Washington State Department of Ecology detail of Expenditures, ECV XJ25 |
| 542 | NA | Roland | Photos taken by Ecology of Black Sand Beach, 2008-2011 |
| 543 | NA | Roland | Photos taken by Ecology of Black Sand Beach interim action, 2010 |
| 544 | 101 LMI | Smith | Geoffrey TG Scott Report on Application for Environmental Impairment Liability Insurance with, Scott invoice |
| 545 | 1458 | Stevens | Resume of Jennifer Stevens |
| 546 | 1401 | Tonel | UCR/LK Roosevelt River Mile 597 to 745 Preliminary Assessment Report, by Region 10 START |
| 547 | 1402 | Tonel | Preliminary Assessments and Site Investigations Report, Lower Pend Oreille River Mines and Mills, by Region 10 START-2 |
| 548 | 1404 | Tonel | Preliminary Assessments and Site Inspections Report, UCR Mines and Mills, Stevens Co., by Region 10 START-2 |
| 549 | 1405 | Tonel | UCR Expanded Site Inspection Report NE WA, by Region 10 START-2 |
| 550 | 1407 | Tonel | Letter from Deborah Leblang to Arnold Bakie enclosing PA/SI of the Cleveland Mine and Mill in Stevens Co |
| 551 | 1409 | Tonel | Summary of Contaminant Sources / UCR Site RI/FS |
| 552 | 1410 | Tonel | Email from Tonel to Stone and Passmore re Upper Columbia Mercury Work Plan |
| 553 | | | Duplicate Exhibit |
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| 557 | | | Duplicate Exhibit |
| 558 | NA | Vlassopoulos | CCT Expert Blum, Joel\5-11-11 Report\J Blum Docs Considered\CHM100809-3.pdf |
| 559 | NA | Vlassopoulos | Reported Metals Concentrations in Trail Smelter Slag, Table 1, page 7, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 560 | NA | Vlassopoulos | Estimated Cumulative Discharges from the Trail Facility to the Columbia River (1921-2005), Table 2, page, 8, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 561 | NA | Vlassopoulos | Metals Concentrations in Pre-smelter Sediment and Maximum Detected in Core Samples, Table 3, page 32, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 562 | NA | Vlassopoulos | Summary of Porewater Chemistry Data, Table 4, page 42, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 563 | NA | Vlassopoulos | Sediment sample locations used in factor analysis, Figure 1, page 12, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 564 | NA | Vlassopoulos | Metals loadings on Factor 1 (top), Factor 2 (middle), and Factor 3 (bottom), Figure 2, page 15, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 565 | NA | Vlassopoulos | Factor 1 scores, Figure 3, page 16, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 566 | NA | Vlassopoulos | Factor 3 scores, Figure 4, page 17, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 567 | NA | Vlassopoulos | Pb-206/Pb-204 versus Pb-208/Pb-204 isotope ratio plot showing signatures of regional and smelter-derived lead sources, Figure 5, page 22, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 568 | NA | Vlassopoulos | Pb-207/Pb-204 versus Pb-208/Pb-204 isotope ratio plot showing signatures of regional and smelter-derived lead sources, Figure 6, page 23, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 569 | NA | Vlassopoulos | Pb-206/Pb-204 versus Pb-208/Pb-204 isotope ratio plot for UCR sediment samples, Figure 7, page 26, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 570 | NA | Vlassopoulos | Pb-207/Pb-204 versus Pb-208/Pb-204 isotope ratio plot for UCR sediment samples, Figure 8, page 27, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 571 | NA | Vlassopoulos | Pb-206/Pb-204 isotope ratio versus slag content of UCR sediment samples and slag separates, Figure 9, page 28, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 572 | NA | Vlassopoulos | Pb-206/Pb-204 isotope ratio versus River Mile for UCR sediment samples and slag separates, Figure 10, page 29, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 573 | NA | Vlassopoulos | Pb-206/Pb-204 isotope ratio versus lead concentration of UCR sediment samples, Figure 11, page 30, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 574 | NA | Vlassopoulos | Concentration profiles of lead, zinc, and copper in three UCR sediment cores in which pre-smelter sediment was encountered, Figure 12, page 31, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |

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| 575 | NA | Vlassopoulos | Antimony, arsenic, barium, and cadmium concentrations of UCR sediment samples versus Pb-206/Pb-204 isotope ratio. Vertical dashed line indicates upper limit for Pb-206/Pb-204 of Trail smelter lead, Figure 13, page 33, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 576 | NA | Vlassopoulos | Chromium, cobalt, copper, and iron concentrations of UCR sediment samples versus Pb-206/Pb-204 isotope ratio. Vertical dashed line indicates upper limit for Pb-206/Pb-204 of Trail smelter lead, Figure 14, page 34, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 577 | NA | Vlassopoulos | Lead, manganese, mercury, and nickel concentrations of UCR sediment samples versus Pb-206/Pb-204 isotope ratio. Vertical dashed line indicates upper limit for Pb-206/Pb-204 of Trail smelter lead, Figure 15, page 35, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 578 | NA | Vlassopoulos | Concentration profiles of lead, zinc, and copper in three UCR sediment cores in which pre-smelter sediment was encountered. The horizontal dashed line represents the top of the pre-smelter horizon at these locations, Figure 16, page 36, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 579 | NA | Vlassopoulos | Resume of Dimitrios Vlassopoulos, Appendix A, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 580 | NA | Vlassopoulos | Sediment Core Study, Appendix B, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 581 | NA | Vlassopoulos | FA Loading Results, Appendix C1, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 582 | NA | Vlassopoulos | FA Scores, Appendix C2, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 583 | NA | Vlassopoulos | Pb Isotope Compositions and Backscatter Electron Image Analysis, Appendix D, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 584 | NA | Vlassopoulos | Pb Isotope Source Data, Appendix D2, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 585 | NA | Vlassopoulos | Release of Major and Trace Elements from Smelter Slag Separated from the Upper Columbia River, a.k.a. "Slag Metals Release Study", Appendix E, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 586 | NA | Vlassopoulos | In Situ Porewater Sampling Study, Appendix F, Export Report of Dimitrios Vlassopoulos, September 17, 2010 |
| 587 | NA | Vlassopoulos | Cadmium: Total and Dissolved Concentrations in the Columbia River at Waneta and Estimated Percentage Particulate Fraction, Figure 1, page 6, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 588 | NA | Vlassopoulos | Copper: Total and Dissolved Concentrations in the Columbia River at Waneta and Estimated Percentage Particulate Fraction, Figure 2, page 7, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 589 | NA | Vlassopoulos | Lead: Total and Dissolved Concentrations in the Columbia River at Waneta and Estimated Percentage Particulate Fraction, Figure 3, page 8, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 590 | NA | Vlassopoulos | Zinc: Total and Dissolved Concentrations in the Columbia River at Waneta and Estimated Percentage Particulate Fraction, Figure 4, page 9, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 591 | NA | Vlassopoulos | Modeled Seasonal High- And Low-Flow Average Velocity Profiles in the Upper Columbia River After the Grand Coulee Dam Was Built, Figure 5, page 11, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 592 | NA | Vlassopoulos | Grain-size Distribution of Sediments in the Mid-channel of the Upper Columbia River, Figure 6, page 12, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 593 | NA | Vlassopoulos | Factor 1 (Slag) Sample Scores Plotted Against River Mile, Figure 7, page 15, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 594 | NA | Vlassopoulos | Factor 2 Sample Scores Plotted Against River Mile, Figure 8, page 15, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 595 | NA | Vlassopoulos | Factor 3 (Liquid Effluent) Sample Scores Plotted Against River Mile, Figure 9, page 16, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 596 | NA | Vlassopoulos | Factor 1 Scores versus River Mile, Coded by Study, Figure 10, page 19, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 597 | NA | Vlassopoulos | Factor 2 Scores versus River Mile, Coded by Study, Figure 11, page 20, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 598 | NA | Vlassopoulos | Factor 3 Scores versus River Mile, Coded by Study, Figure 12, page 20, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 599 | NA | Vlassopoulos | Variation of Factor 3 Sample Scores with Clay Content of Samples, Figure 13, page 21, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 600 | NA | Vlassopoulos | Sampling Locations of Dr. Riese's "Identified Northport/Leroi Slag" Samples Relative to the Former Smelter Site, Figure 14, page 23, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 601 | NA | Vlassopoulos | Pb-207/Pb-204 versus Pb-206/Pb-204 of Slag Samples, Figure 15, page 24, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 602 | NA | Vlassopoulos | Pb-207/Pb-204 versus Pb-208/Pb-204 of Slag Samples, Figure 16, page 26, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 603 | NA | Vlassopoulos | Pb-207/Pb-204 versus Pb-208/Pb-204 of Sediment Samples, Figure 17, page 28, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 604 | NA | Vlassopoulos | Calculated Solubilities of Magnetite and Zinc Spinel in Water at pH 7 as a Function of Redox Potential (Eh), Figure 18, page 31, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 605 | NA | Vlassopoulos | Element Concentrations on Surfaces of Slag Particle Rims and Inner Surfaces Exposed by Removing Rim, Figure 19, page 33, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 606 | NA | Vlassopoulos | SEM Image of Slag Particle Showing Discontinuous, Cracked, and Peeling Outer Weathered Layer, Figure 20, page 35, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 607 | NA | Vlassopoulos | SEM Image of Trail Slag Particle Showing Discontinuous and Peeling Outer Weathered Layer, Figure 21, page 36, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |

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| 608 | NA | Vlassopoulos | SEM Image of Trail Slag Particle, SCB15A, Collected from UCR Sediment Near the International Border, Figure 22, page 37, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 609 | NA | Vlassopoulos | Higher Magnification View of Figure 22 Showing Discontinuous, Cracked, and Peeling Outer Weathered Layer Exposing Pitted Slag Surface Underneath, Figure 23, page 38, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 610 | NA | Vlassopoulos | Close-up View of Figure 23 Showing Cracked and Peeling Outer Weathered Layer and Pitted Slag Surface Underneath, Figure 24, page 39, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 611 | NA | Vlassopoulos | SEM Image of Trail Slag Particle, BSB17A-4, from Black Sand Beach Showing Discontinuous and Cracked Nature of the Outer Weathered Layer, Figure 25, page 40, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 612 | NA | Vlassopoulos | Close-Up View of Figure 25 Showing Two Cracked and Peeling Weathered Layers Exposing Slag Underneath, Figure 26, page 41, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 613 | NA | Vlassopoulos | Lead Isotope Ratios in Sediment Porewater, Figure 27, page 46, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 614 | NA | Vlassopoulos | Metals Loadings on Riese's PCA Component 2, Figure 28, page 51, Rebuttal Report of Dimitrios Vlassopoulos, May 13, 2011 |
| 615 | NA | Vlassopoulos | Release of Major and Trace Elements from Smelter Slag Separated from the Upper Columbia River in Batch and Fluidized Bed Reactors |
| 616 | NA | Vlassopoulos | Cox, et. al., "Vertical Distribution of trace element concentrations and occurrence of metallurgical slag particles in accumulated bed sediments of Lake Roosevelt |
| 617 | 38 | Walden | Research Notebook: Tls. Slag Stockpiling & Environmental Studies |
| 618 | 39 | Walden | Chemistry and Environment Group Monthly Report - April, 1995 |
| 619 | 40 | Walden | Cominco Research Project Definition Worksheet |
| 620 | 41 | Walden | Research Report: Leach Tests of Sulfurcrete Samples |
| 621 | 42 | Walden | Cominco Research Project Definition Worksheet |
| 622 | 44 | Walden | Memo from Walden to Mattson: Interium Report - Laboratory Column Leaching of Ferrous Granules |
| 623 | 45 | Walden | Memo from Walden to JRH: Metals Leaching from Ferrous Granules, a Laboratory Column Study |
| 624 | 46 | Walden | FINAL Survival and Water Quality Results of Bioassays on Five Species of Aquatic Organisms Exposed to Slag From Cominco's Trail Operations, by Nener |
| 625 | 75 | Wyton | Memo: Smelter Mercury Balance (Nov. 1983) |
| 626 | 76 | Wyton | Memo: Trail Operations August Sewer Losses Compared to Levels Specified in Pollution Control Permits |
| 627 | 78 | Wyton | File Note from Jaek: Barren Slag Disposal |
| 628 | 79 | Wyton | Ltr Re: Permit PE/02753 / Trail Slag Disposal |
| 629 | 80 | Wyton | Meeting with Provincial and Federal Government People on Smelting Technology and Associated Issues |
| 630 | 81 | Wyton | Memo: Advancement of Slag Discharge Elimination Deadline |
| 631 | 82 | Wyton | Effluent Management Task Force Mintues of Meeting - 11 September 1992 |
| 632 | 83 | Wyton | Ltr Re: Cominco Commitment to a Revised Slag Program |
| 633 | 84 | Wyton | File Note: 07 Performance, Discussion with Carl Johnson, MOELP |
| 634 | 85 | Wyton | Ltr Re: 07 Sewer Action |
| 635 | 86 | Wyton | Memo: III Combined Performance Hg |
| 636 | 87 | Wyton | Amendments to Effluent Permit PE/02753 |
| 637 | 88 | Wyton | E-mail Re: Combined II and III Spill This Week |
| 638 | 89 | Wyton | E-mail Re: 07 Sewer Spill March 13 |
| 639 | 93 | Wyton | Memo from McCunn: Trail Operation July 1983 Sewer Losses Compared to Levels Specified in Pollution Control Permits |
| 640 | 94 | Wyton | Memo: Trail Operation November 1983 Sewer Losses Compared to Levels Specified in Pollution Control Permits |
| 641 | 97 | Wyton | E-mail re: Aug 23rd MOE meeting, preview to Sept. 13th meeting |
| 642 | | | Deleted Exhibit |
| 643 | NA | | Slag floating |
| 644 | NA | | Trail effluent into Columbia River |
| 645 | NA | | Slag floating in water |
| 646 | NA | | Slag floating in water |
| 647 | NA | | Slag across river |
| 648 | NA | | Black Sand Beach |
| 649 | NA | | Photo taken 3/13/2001 of North Half Allotment, Colville Reservation, confluence of Kettle River at Marcus Flats, Kettle Falls; spring drawdon |

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| 650 | NA | | 1896 photo of Trail Smelter from BC Archives |
| 651 | NA | | 1898 photo of Trail Smelter from BC Archives |
| 652 | NA | | 1927 photo of Trail Smelter from BC Archives |
| 653 | NA | | 1927 photo of Trail Smelter from BC Archives |
| 654 | NA | | 1929 photo of Trail Smelter from BC Archives |
| 655 | NA | | 1936 photo of Trail Smelter from BC Archives |
| 656 | NA | | 1938 photo of Trail Smelter from BC Archives |
| 657 | NA | | 1943 photo of Trail Smelter from BC Archives |
| 658 | NA | | 1940 photo of Trail Smelter from BC Archives |
| 659 | NA | | 1953 photo of Trail Smelter from BC Archives |
| 660 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\SCB15grain#1 slag SEM images\SCB15grain#1_imageA-11.jpg |
| 661 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\SCB15grain#1 slag SEM images\SCB15grain#1_imageC-09.jpg |
| 662 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\SCB15grain#1 slag SEM images\SCB15grain#1_imageE-03.jpg |
| 663 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\SCB15grain#1 slag SEM images\SCB15grain#1_imageF-02.jpg |
| 664 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\BSB17A_4 slag SEM Images\BSB17A_4_imageA-08.jpg |
| 665 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\BSB17A_4 slag SEM Images\BSB17A_4_imageC-03.jpg |
| 666 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\BSB17A_4 slag SEM Images\BSB17A_4_imageF-05.jpg |
| 667 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\SCB15grain#2 slag SEM images\SCB15grain#2_imageA-03.jpg |
| 668 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\SCB15grain#2 slag SEM images\SCB15grain#2_imageB-02.jpg |
| 669 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\SEM Images\SCB15grain#2 slag SEM images\SCB15grain#2_imageC-01.jpg |
| 670 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\Slag Photomicrographs\BSB17A slag grain photographs\BSB17A_4 5x.pdf |
| 671 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\Slag Photomicrographs\BSB17A slag grain photographs\BSB17A_4 10x.pdf |
| 672 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\Slag Photomicrographs\BSB17A slag grain photographs\BSB17A_4.jpg |
| 673 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\Slag Photomicrographs\BSB17A slag grain photographs\BSB17A_4B.jpg |
| 674 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\Slag Photomicrographs\SCB15 slag grain photomicrograph\SCB15_grain#1.pdf |
| 675 | NA | | D McLean Docs Considered\Nelson Report images dated 5.10.11\Slag Photomicrographs\SCB15 slag grain photomicrograph\SCB15_grain#2.pdf |
| 676 | NA | | Chemical Analyses and Mineralogical Characterization of Fort Shepherd Slag Sample and Pend Oreille River and Tributary Sediment Samples, Hazen Report a, December 9, 2010 |
| 677 | NA | | Chemical, Mineralogical, and Textural Characterization of Upper Columbia River Sediments, Hazen Report b, December 10, 2010 |
| 678 | 1 | Bradley | Fine Sediment Model (Tracer Study), §1.2, page 9, Appendix to Expert Report of J. Bradley, January 14, 2011 |
| 679 | | | Duplicate Exhibit |
| 680 | 1 | Riese | Relationships Between Stream Flow Velocity and Particle Size Erosion, Transport and Deposition, Figure 19, page 39, Expert Report of Arthur C. (Sandy) Riese, January 14, 2011 |
| 681 | 1 | Riese | Zinc Fluxes from UCR Sediments, Background Surface Water at Birchbank, and Select Tributaries During 2001, Figure 27, page 47, Expert Report of Arthur C. (Sandy) Riese, January 14, 2011 |
| 682 | 1 | Riese | Sediment Metal Diffusion Calculations, Appendix I, Expert Report of Arthur C. (Sandy) Riese, January 14, 2011 |
| 683 | | | Deleted Exhibit |
| 684 | NA | | Potential impact of mercury discharged to Columbia River (prepared for Cominco, Ltd. Attn. Nigel Doyle, by Division of Applied Biology, B.C. Research) TECK 0310648 |
| 685 | NA | | MEMO TO FILE Summary of PCB Meeting re. Future Plant Sewers (J.B. Brodie, Industrial Division Mining Section) TECK0115862 |
| 686 | NA | | Higginson Expert Report, Opinion 1 (excerpt) |